

Zotero Everywhere: Browser- and Machine-Independent Support for the Research Community

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The final year of Zotero Everywhere continued the project's rapid development and expansion into platforms and environments previously unavailable to the Zotero community. We are pleased to report that the project has successfully penetrated a range of new markets and continued to establish itself as the standard tool promoted by universities, libraries, and other research institutions around the world. In turn the vastly expanded range of supported platforms, developed thanks to Zotero Everywhere, has fueled a steady increase in the purchase of Zotero services which guarantees Zotero's future growth and sustainability. In this report we outline the major achievements of Zotero Everywhere's final year.

Independence from Firefox

Zotero Everywhere's core desktop deliverable is a standalone Zotero application that runs on Windows, Mac, and Linux PCs without the Firefox web browser. As projected in our interim report, we released the first full production version of this standalone application in January 2012 as Zotero 3.0. Over the rest of 2012 we released fourteen maintenance updates to version 3.0. In 2013 we continued our rapid evolution away from dependence on the Firefox browser with an entirely new version, Zotero 4.0, which offers a complete rewrite of much of Zotero's user interface and internal architecture. Despite this major reworking of Zotero's client code, our users made a smooth transition to version 4.0, and eight minor maintenance updates have ensured its compatibility with new operating systems and browsers.

At the heart of standalone Zotero is a new site translator architecture that is fully decoupled from the Firefox browser. Zotero currently relies on over four hundred individual site translator code snippets, which in turn allow automatic metadata import from thousands of websites ranging from critical research databases to popular media outlets. During the last year each of these hundreds of translators has been rewritten for compatibility with standalone Zotero, largely by volunteer coders, and validated by an automated testing framework we have developed.

To interact with the new translator architecture described above, we created plugins for several popular web browsers to allow users to add items directly to standalone Zotero. In January 2012,

we released the first full production version of plugins for Apple Safari and Google Chrome. In June 2013, we released fully updated versions of these plugins. We now offer the Chrome plugin via Google's Chrome Web Store where 148,000 users have already installed it. Among standalone users, approximately 83% currently use Google Chrome while 17% connect to Zotero using Apple Safari. To extend access to Zotero even beyond the popular Firefox, Chrome, and Safari browsers, we have also completed development on our Javascript-based bookmarklet, which allows other browsers such as Microsoft Internet Explorer and iOS Safari to save and import items from the web into Zotero libraries. In May 2012 we publicized the first beta version of our bookmarklet on the Zotero developers list, and in November 2012 we offered its first full production version.

Machine Independence

Beyond liberating Zotero users from Firefox, Zotero Everywhere also has freed them from dependence on any particular piece of hardware. In order to achieve this goal, we have undertaken major work on Zotero's server code and infrastructure. In the first phase of Zotero Everywhere we added write access to our application programming interface (API) to allow third-party developers to make changes to Zotero libraries on our server. In January 2013 we released version 2 of our API, completely rewritten to operate far more efficiently and exposing for the first time the full functionality of Zotero to outside developers. Now any Zotero user or third party can replicate all of the functionality of the Zotero client as they like, including synchronization between their own clients and the Zotero server. A spate of third-party clients – outside developers have currently designed software for Google Android, Apple iOS, WordPress, and more – attest to the popularity of this open approach. Future versions of our own Zotero client will operate far more efficiently and quickly thanks to this new API.

Unfortunately the implementation of this new API has delayed the release of Zotero Everywhere's full-text synchronization functionality – all other deliverables were completed during the grant's period of performance. Although the full-text architecture is in already place, we are waiting for Zotero's next major desktop client release, which will take full advantage of the new server API. We anticipate releasing this functionality to the public in Fall 2013.

The increased demands posed by Zotero's increased server-side functionality coupled with its growing user base have required substantial expansion of our cloud server infrastructure. Since late 2010, we have relied on Amazon Web Services (AWS) to provision the dozens of virtual servers hosting the hundreds of individual database instances that support Zotero's hundreds of thousands of server users.

Sustainability

We are pleased to report that Zotero Everywhere has succeeded in breaking new ground as a sustainable, large-scale digital humanities project. The overarching goal of Zotero Everywhere was to secure Zotero's long-term viability through growth in user base and reduction of attrition for competing platforms and environments. Zotero Everywhere has exceeded expectations on this front. As of early May 2013, Zotero hosted over 1.2 million individual user accounts including over 200 million library items. These users collaborated in 150,000 Zotero research groups, more than half of which were open to the public. This consistently growing user base in turn has translated into a steadily rising revenue stream associated with Zotero storage and services. As of 2013, Zotero users currently purchase \$25,000-\$30,000 of Zotero storage each month, which now entirely defrays our annual infrastructure costs of approximately \$50,000 and on-going maintenance development costs of approximately \$250,000.

Support for a range of browsers and platforms beyond desktop Firefox has also eliminated a long-standing barrier to institutional adoption, where support for Microsoft Internet Explorer (IE) remains essential. The European University Institute, for example, recently became an annual subscriber for Zotero storage for the entire institution after years of demurring because of Zotero's lack of support for IE.

In short, we are delighted with the results of Zotero Everywhere, and we thank the Andrew W. Mellon Foundation for its generous support of our work. We look forward to many years of future progress based on the firm foundation established by this project.

Sincerely,

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